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4 at least one uplink connection that receives and sends packets,
5 a plurality of port adapters that receive and send [the] packets;
6 a plurality of route processing engines; and
7 a mechanism that performs a hashing function on at least a portion of network
8 layer information in the packets received to determine a distribution of the packets to the
9 route processing engines for processing by the engines, and to determine packets be-
10 longing to a same flow, the distribution being such that an [original] ordered packet flow
11 [comprising the packets] is preserved by being sent to a single route processing engine.—

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1 --11. (Twice Amended) A routing system for distributing packets in a network, com-
2 prising:
3 a plurality of network interfaces including port adapters that send and receive
4 packets;
5 a plurality of route processing engines;
6 a fabric interconnecting said plurality of network interfaces and said plurality of
7 route processing engines;
8 wherein each of said plurality of network interfaces uses a hashing function to
9 determine a distribution of the received packets among said plurality of route processing
10 engines; and

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11 wherein the hashing function is carried out on at least a portion of network layer
12 information in the packets, and to determine ordered packets belonging to a same flow,
13 and the distribution is such that an [original] ordered packet flow [comprising the pack-
14 ets] is preserved by being sent to a single route processing engine.--
15 the distribution being such that an original ordered packet flow [comprising the packets]
16 is preserved by being sent to a single route processing engine

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1 --17. (twice Amended) A method for selecting one processing engine of a plural-
2 ity of processing engines for processing at least one packet, the method comprising the
3 steps of:

4 hashing at least a portion of network layer [flow]information of at least one
5 packet to determine a distribution of the packets to the processing engines;
6 identifying from the network layer information the at least one packet that belongs
7 to a same ordered packet flow, and
8 selecting the one processing engine based upon, at least in part, the portion of the
9 network layer [flow] information in such a way as to preserve [an] the [original] ordered
10 packet flow [comprising the at least one packet].--

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2 --20. The method of claim [19] 17, wherein the hash value is computed by logically
3 XORing the addresses, the port, and the protocol type value.--

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1 21. The method of claim 17 [19], further comprising the steps of:
2 providing a table containing entries for use in selecting the one processing engine;
3 and
4 selection one entry in the table specified by an index value, the index value being
5 based upon the hash value, and
6 using the index value to direct the selection of the one processing engine for those
7 related packets that belong to the same packet flow.

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1 25. The method of claim [22] 17, wherein the at least one [original] ordered flow
2 comprises a plurality of [original] ordered flows, and the step of hashing is performed
3 such that only a single respective processing engine is selected to process respective
4 packets belonging to a respective original flow.

1 26. A system for selecting one processing engine of a plurality of processing engines
2 for processing at least one packet, the system comprising:
3 means for examining at least a portion of network layer [flow] information of the
4 at least one packet[.] that comprises one or more of the following network information: a
5 network source address of the at least one packet, a network destination address of the at
6 least one packet, a source port of the at least one packet, a destination address of the at
7 least one packet, and a protocol type value of the at least one packet, and
8 means for selecting the one processing engine based upon, at least in part, the
9 portion of the network layer flow information in such a way as to preserve an original
10 packet flow comprising the at least one packet.

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1 28. The system of claim [27] 26, wherein the means for examining comprises means
2 for hashing the portion of the network layer flow information to produce a hash value,
3 and the hash value is used, at least in part, to select the one processing engine.

1 34. The system of claim 31, wherein the at least one [original] ordered flow com-
2 prises a plurality of [original] ordered flows, and the means for hashing carries out the
3 hashing such that only a single respective processing engine is selected to process re-
4 spective packets belonging to a respective [original] ordered flow

1 35. Computer-readable memory comprising computer-executable program instruction
2 for selecting one processing engine of a plurality of processing engines for processing at
3 least one packet, the instructions, when executed, causing:

4 examining of at least a portion of network layer [flow] information of the at least
5 one packet; wherein the network layer information comprises one or more of the follow-
6 ing network information: a network source address of the at least one packet, a network
7 destination address of the at least one packet, a source port of the at least one packet, a
8 destination address of the at least one packet, and a protocol type value of the at least one
9 packet, and

10 selecting of the one processing engine based upon, at least in part, the portion of
11 the network layer flow information in such a way as to preserve an ordered [original]
12 packet flow comprising the at least one packet.